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Starting or Expanding Your Sheep Flock

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Are sheep coming back? Certainly something has caused yearling ewes to sell for $80 to $90 in 1977, and $90 to $125 in 1978. Even full-mouth ewes were eagerly sought out at $55 to $70 a head in 1978.

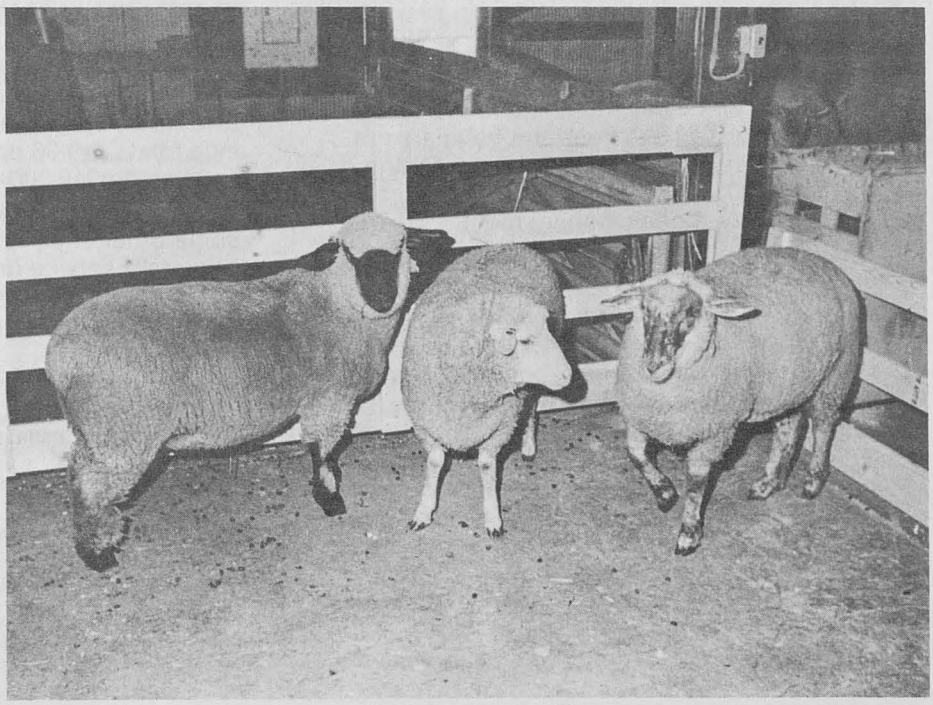
These "high" prices for breeding ewes raise many questions including: a) why are they so high; b) will they go higher; c) how long will they remain high; d) how significant is the effect of ewe prices on the cost of producing 100 pounds of lamb; and e) are ewe prices already so high that they preclude a reasonable chance for a profitable sheep enterprise?

WHAT IS A GOOD EWE WORTH?

Many factors contribute to a ewe's worth. Is she a yearling or a mature ewe? Has she been sheared, or does she have a full fleece? Is she pregnant or with a lamb at her side? In addition, what is her value in relation to choice market lambs, bred cows, corn per bushel, hay per ton, etc.? And will you be able to utilize unused rough pasture, an unused dairy barn, or underemployed labor? It is hazardous to judge a ewe's worth entirely by past price relationships, or to be very certain of future projections. However, it appears that ewes may have more "projected inflation" built into their prices than they can safely pay for or amortize.

Ewes versus Lambs

For approximately the last 50 years, the Midwest flock producer could purchase good yearling ewes for the value of one choice 100-pound market lamb; i.e., you could sell a choice market lamb for $35 and buy a yearling ewe in the fall for $35 to $40. (This market lamb/yearling ewe price relationship is critical, when deciding whether to raise or buy replacements.) Yet, during this time the prevailing opinion was "Ewes are too high" rather than "Ewes are underpriced in relation to lambs." If this historical price relationship between lambs and ewes existed currently and market lambs were selling for $70 per 100 pounds, then even if you paid 20 percent more for a yearling ewe than for a market lamb it would result in the yearling ewe being priced at $84 per head. A more typical price in 1978 is $100. On the basis of this very simple historical lamb/ewe price relationship, ewes do not appear to have as much ability to pay off capital indebtedness as their high prices suggest.



A Hampshire, a quarter-blood Finn cross, and a one-eighth-blood Finn cross ewe lamb — each sufficiently mature to conceive and raise a lamb. Failure to breed them would decrease the number of lambs they would produce in a lifetime.

Feed Prices

One of the obvious flaws in this comparison is that the effect of feed prices in relation to lamb prices has not been considered. Nor has any account been made of the relative lamb/beef prices.

Are market lamb prices at an uncommonly favorable relationship with feed prices? No abnormal demand for ewes existed in 1969-1971 when corn was $1 per bushel, hay was $20 per ton, and lambs hovered around $28 per 100 pounds. When lamb prices advanced to $40 to $50 in 1974-1975, corn increased to $3 per bushel and ewe prices were strong — but not abnormally so. Even when sheep enjoyed a significant profit advantage over cattle (1973-1977), ewe number in Minnesota continued to decline.

A MONEY MANAGEMENT APPROACH

While a ewe is "worth" as much as you have to pay, in reality her worth must be measured over a period of years, in terms of sufficient production to result in a *profit*. Furthermore, the profit must relate favorably to other alternatives; e.g., if there is as much profit and more glamour in a beef cow, then the ewe isn't "worth" as much as she was when cattle was less profitable.

Demand Factors

Have a unique set of demand factors, coinciding during a brief period of time, caused the unprecedented prices for breeding ewes? These factors include: a memory of disastrous cattle prices and bankers who ended-up with some sour cattle loans; $1 wool; depression-priced grain; stable lamb prices at very profitable levels; and a sudden realization that current strains of sheep, feeding, and management systems have elevated the ewe's production ability from 60 pounds to 160 pounds of lamb per ewe bred.

Production efficiency, health, and top lamb production always have been the hallmarks of success in sheep management. With yearling ewes selling for $100, successful sheep management now must emphasize money management.

Commitment

From the standpoint of the sheep industry, one of the blessings of $100 ewes is the commitment one must make to sheep. For the flock owner, $100 ewes represent more wealth, more security, and greater borrowing power. But they also represent greater obligation and greater financial risk. The ewes become a significant piece of property that cannot be treated lightly. A $100 investment must be treated with concern and as a business. An investment of that size should be treated to better husbandry, better health, and improved management. Then the sheep — even $100 ones — will respond accordingly.

Capital Costs

One hundred ewes at $100 each represent $10,000. If five die, the remaining 95 head no longer cost you $100 but $105 a piece; and for one reason or another, about four out of every 100 die each year. Since the four ewes can die anytime, on the average for the year you must feed two more ewes than the number that actually lamb. Over a 6-year period you will lose about 24 ewes out of 100. The difference between what you paid for them initially ($10,000) and what you realize for them as 76 old, worn-out slaughter ewes at $20 a head is $8,480 — or a *depreciation* cost per year of $14.13 per ewe. Actually, death loss at 4 percent per year, with ewes valued at $100 a head, costs you $2,400 over a 6-year period or about 35 percent of the total difference between what you initially paid for the ewes and the amount that must be written-off as depreciation.

Death loss or flock size reduction for one reason or another is paramount from the standpoint of yearly earning power. For example, if during the course of 6 years your death loss had been 12 ewes or 2 percent per year, rather than 24 ewes or 4 percent per year, 12 additional ewes could have produced 18 more lambs per year or 108 more lambs during the 6-year period. Furthermore, if death loss had been 2 percent rather than 4 percent, you would have had to retain 12 fewer ewe lambs for replacements, resulting in about 2 percent greater income each year.

Now consider *interest*. One hundred ewes at $100 each would represent (at 10 percent interest) $10 interest cost per ewe the first year. If the loan was amortized, as most banks would expect, the amount you would owe the bank would be reduced yearly. The payback on a $10,000 loan in six equal installments amounts to $1,667. Therefore, while your interest would represent $1,000 the first year, it would be $167 the last year. On the average, over a 6-year period it would amount to about $5.83 per ewe (table 1). Interest plus $14.13 depreciation per ewe totals $19.96 per ewe annually, as the cost to service the $10,000 investment in 100 ewes.

In addition to interest and depreciation costs, some other expenditures can be estimated. Thus, total debt service (interest and depreciation on ewes and equipment) plus ram and veterinary costs total $26.96 per ewe annually (table 2).

Table 1. Interest and Depreciation Costs per Yearling Ewe at Various Initial Costs

Initial cost/ewe	$60	$70	$80	$90	$100
Interest 10%	$ 3.50	$ 4.08	$ 4.66	$ 5.25	$ 5.83
Depreciation (6 years) and removal ≈ 4%	7.47	9.13	10.80	12.47	14.13
TOTAL[1]	$10.97	$13.21	$15.46	$17.72	$19.96

[1]Returns from wool and cull ewe sales (≈ $20 per head) approximately will cover value of replacement ewes ≈ 18-20 percent annually.

Table 2. Nonfeed Costs per Ewe Annually, with $100 Ewes[1]

Barn	$ 3.00
Fencing	1.00
Ram costs	1.00
Interest @ 10%	5.83
Feed bunks, waterers, etc.	1.00
Vet/drugs	1.00
Depreciation and death loss	14.13
TOTAL	$26.96

[1]From Animal Science Fact Sheet 32, Agricultural Extension Service, University of Minnesota, 1977.

After determining the capital costs of $100 yearling ewes, your next questions are, logically, "How much can I afford to pay for mature ewes?" and "Would they result in a lower annual interest and depreciation cost than yearling ewes?" Three factors have the major bearing on interest and depreciation costs of mature ewes: a) cost per head, b) mortality, and c) number of years of good production remaining. We estimate that the yearly attrition of a group of 5- to 7-year-old ewes is twice that of yearlings, or about 8 percent. The number of years a set of purchased mature ewes can produce profitably depends to a great degree on your feeding and management program, plus how old the ewes actually are. Obviously, an 8-year-old solid-mouth ewe has less chance of producing for 2 or 3 years than a 6-year-old solid-mouth ewe; yet the condition of their teeth may be similar. Few ewes remain productive after 8 years.

A comparison of capital costs of yearling and mature ewes is presented in table 3. The data suggest that mature ewes are seldom worth more than 50 percent the value of a yearling. Their value in relation to yearling ewes, while largely affected by their number of productive years, also is affected by their value as slaughter ewes.

Table 3. Relative Interest and Depreciation Costs of Yearling and Mature Ewes Kept for 2 or 3 Years of Production

	Yrlgs.	Mature Ewes					
Cost/head	$100	$40		$50		$60	
Years kept in production	6	2	3	2	3	2	3
Interest cost/ewe annually	$ 5.83	$ 3.00	$ 2.66	$ 3.75	$ 3.34	$ 4.50	$ 4.00
Deprec. cost/ewe[1] plus 4% mortality/yr.	14.13						
Deprec. cost/ewe plus 8% mortality/yr.		11.60	8.27	16.60	11.60	21.60	14.93
Total capital costs/ewe/yr.	$19.96	$14.60	$10.93	$20.35	$14.94	$26.10	$18.93

[1]Starting with yearling ewes, after 6 years you sell 76 ewes for slaughter @ $20 per head; with mature ewes (8% mortality/year) you sell 84 or 76 ewes, when kept for 2 and 3 years, respectively.

Breeding

A third alternative remains for those wanting to expand their current flock or just starting a sheep enterprise. Ewe lambs currently can be purchased for 25 to 35 percent less than yearling ewes. To make this alternative economically sound, the ewes must be bred to lamb at 12 to 14 months of age. Ideally, they should be mated with a breed of ram that will result in a smaller-than-average lamb at birth to minimize difficulty at lambing time. While several breeds might be chosen (Cheviot, Dorset, Shropshire), a half-blood Finn ram would not only reduce the birth weight by 1 to 2 pounds but result in very prolific replacement ewes.

The ewe lambs should weigh 95 to 100 pounds when bred and be fed so they gain 35 to 40 pounds during gestation. With the down breeds (Suffolk, Hampshire, and Shropshire) and Finn-cross ewe lambs, you may expect 95 percent to lamb. Quarter- and half-blood Finn ewe lambs rather consistently have produced a 140 to 175 percent lamb crop. Columbia, Corriedale, and Rambouillet ewe lambs are not as sexually precocious. About 40 to 60 percent will lamb at 12 to 14 months.

Their wool and the 60 to 100 percent lamb crop you sell will more than pay for their year's keep, and you will have a set of yearling ewes a year later that cost appreciably less than if you initially purchased yearling ewes at $110 to $125.

A Production Budget

With these basic figures, let's develop a production budget and arrive at the projected necessary break-even selling price for lambs. The data in table 1 show that increased capital expenditures for ewes — and the effects on interest, depreciation, and mortality costs — significantly influence lamb production costs (approximately $2.25 per 100-pound lamb for each $10 increase in ewe costs).

The nonfeed costs (table 2) are not necessarily out-of-pocket costs, but they are charges that should be made against the sheep operation. With higher-cost ewes and inflated building and equipment expenses, *nonfeed costs now represent about one-third of the cost of lamb production.* More importantly, they are independent of the level of production and are the same whether you sell 80 pounds or 180 pounds of lamb per ewe.

In order to develop a realistic budget, two hypothetical but realistic feeding programs and three levels of lamb production have been used in table 4. In one case, a high level of lamb production theoretically is attained via a feeding program that includes little salvage feed. The other case involves considerable feed savings by maximizing salvage feed usage (corn stalks, small grain aftermath, etc.).

The feed cost data per 100 pounds of lamb from table 4 have been combined with the nonfeed cost

Table 4. Sheep Feed Production Annual Budget Using Two Levels of Hay Feeding

Expected Feed Costs for Various Levels of Production	
Scheme 1: Minimize use of pasture or salvage feed — high lamb production	
4 lb hay equivalent/ewe daily = 1,550 lb @ 2¢/lb	$31.00
100 lb grain/ewe @ 3.5¢/lb	3.50
350 lb lamb feed/100 lb lamb @ 4½ lb	15.75
Total	$50.25
Scheme 2: Maximize use of salvage feed — economize on hay — high lamb production	
3 lb hay equivalent/ewe daily = 1,100 lb @ 2¢/lb	$22.00
100 lb grain/ewe @ 3.5¢/lb	3.50
350 lb lamb feed/100 lb lamb @ 4½ lb	15.75
Total	$41.25

data from tables 1 and 2 to develop table 5. Table 5 makes three important points:

(1) Lamb production costs can be reduced substantially by reducing the costs of feeding the ewe. In this particular example we have accomplished it by feeding less hay in scheme 2 (1,100 pounds versus 1,550 pounds per ewe annually), by maximizing the use of salvage feeds. Another equally obvious method is to feed no more nutrients than the ewe needs for a specific level of production. Too many producers feed too much hay, which results in it being hauled out as manure. Even a 175- to 180-pound ewe needs only 3½ pounds of good hay daily for about 3½ months of gestation. If you feed much above that level, the ewe will get picky and waste hay she should be forced to eat.

(2) While the price of ewes has a bearing on lamb production, the price you pay for a ewe is not nearly as significant as her ability to produce at a high level. While the ewe's age and nutrient intake during breeding, gestation, and lactation affect her ability to wean a high percentage, there is valid evidence that vast differences exist in ewes' genetic potential to wean a high percentage of lambs. The data in table 5 indicate that ewes that initially cost $100 per head and consistently wean 140 pounds of lamb per ewe are able to produce 100 pounds of lamb at a lower cost than ewes that cost $80 per head but produce only 100 pounds of lamb ($51.65 versus $64.71 per 100 pounds, respectively).

(3) As the level of production increases (from 100 pounds to 160 pounds), the effect of the ewes' initial cost becomes a smaller and smaller factor in the cost of producing lamb.

Table 5. Effect of Ewe Costs, Level of Lamb Production, and Production Costs on the Break-even Selling Price for 100 Pounds of Lamb

Ewe costs/head	$80			$100		
Pounds lamb sold	100	140	160	100	140	160
Total nonfeed costs/ewe[1]	$22.46	$22.46	$22.46	$26.96	$26.96	$26.96
Total ewe and lamb feed costs/ewe[2]						
Scheme 1	$50.25	$56.55	$59.70	$50.25	$56.55	$59.70
Scheme 2	$41.25	$47.55	$50.70	$41.25	$47.55	$50.70
Total nonfeed and feed costs/100 lb lamb						
Scheme 1	$72.71	$56.44	$51.35	$77.21	$59.65	$54.16
Scheme 2	$63.71	$50.01	$45.72	$68.21	$53.22	$48.54
Wool value/ewe	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00	$ 8.00
Break even selling price/100 lb lamb						
Scheme 1	$64.71	$48.44	$43.35	$69.21	$51.65	$46.16
Scheme 2	$55.71	$42.01	$37.72	$60.21	$45.22	$40.54

[1]Based on 10 percent interest charge, payback on purchase price of ewes in six annual installments, and a selling price of $20 per head on 76 ewes per 100 remaining after 6 years. In addition, a $7 cost per ewe for barn, equipment, and drugs is assessed. The annual interest and depreciation charges per ewe are $4.66 and $10.80, respectively, for the $80 ewe, and $5.83 and $14.13, respectively, for the $100 ewe.

[2]Feed costs follow. Scheme 1 (table 4): 1,550 lb hay @ 2¢/lb; 100 lb grain @ 3.5¢/lb per ewe ($34.50 ewe feed costs); and 350 lb lamb feed @ 4.5¢/lb per 100 lb of lamb. Thus, lamb feed costs $15.75, $22.05, and $25.20 for 100, 140, and 160 lb of lamb gain, respectively. Scheme 2: 1,100 lb of hay and 100 lb grain fed yearly ($25.50 yearly ewe feed costs); lamb feed costs are the same as for scheme 1.

SUMMARY

On the surface, $100 ewes may appear extravagant. Yet relative lamb/feed prices have changed so drastically in the last 3 years that more profit potential seems to exist now (with existing lamb prices) than existed several years ago with $40 ewes.

With that money picture, how should you manage $100 ewes? No differently than $40 ewes, *except more is at stake.* You are more obligated financially; and mediocre management that results in high mortality, inefficient production, high costs, and sub-par productivity per ewe will be reflected in a significantly lower profit.

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